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A Study of Relationship between Physical Fitness and Creativity of Different Grades of Students

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Abstract

The purpose of the study was to observe the relationship between physical fitness and creativity in particular age group of students. The data was collected from the Higher Secondary School namely Madhyamgram High School from the district of North 24-Parganas of the state of West Bengal in India. In this study 150 subjects were selected randomly from 10 – 16 years of age group. Subjects were of four different age group such as 10 – 11 years (class – V), 12 – 13 years (class – VII), 14 – 15 years (class – IX), 16 – 17 years (class – XI). The criterion measures adopted in this study were physical fitness and creativity. The physical fitness of the subjects was measured through AAHPER Youth Physical fitness Test and the creativity was measured through B.K. Passi test of verbal and figural creativity. After collecting data the researcher used the statistical calculation such as mean, S.D. and correlation. The results of the study indicated that in physical fitness, the students of class – VII were better than class – V, IX & XI students, and class – V were also better than class – IX & XI group of students. In creativity class – XI students were also better than the other three groups of students. The students of class – IX also were better than class – V & VII students. It was found that the co-efficient of correlation between physical fitness and creativity. Class - V, VII, IX & XI groups were not significant, but class – V and class – VII had negative relationship.

Keywords: *Physical fitness, Creativity, fluency, flexibility, originality.*

Introduction

Today, there is a growing emphasis on looking good, feeling good and living longer. Increasingly, scientific evidence tells us that one of the keys to achieving these ideals is fitness and exercises. We have become a mechanically mobile society, relying on machines rather than muscle to get around. In addition, we have become a nation of observers with more people including children spending their leisure time pursuing just that – leisure. Consequently, statistics show that obesity and the problems that come with it like high blood pressure, diabetes, etc. are on the rise. But statistics also show that preventive medicine pays off, so one should not wait until his/her doctor gives an ultimatum. Everyone must take the initiative to get active now.

Exercise must become one of those things that you do without question, like bathing and brushing your teeth. Unless you are convinced of the benefits of fitness and the risks of unfitness, you will not succeed. You can't regain in a few days or weeks what you have lost in years of sedentary living, but you can get it back if you persevere.

Since the beginning of human life on this earth, man has faced numerous problems and solved them with the help of intelligence and creativity.

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The wonderful and amazing ability that enables persons to make new inventions and to find solutions to challenging problems and thereby make the life worth living, has been termed as creativity. Creativity is the highest function of intellect.

All individuals possess creative ability, but in varying degrees. All can be creative in their respective fields of work. Creative persons work in a creative way and this quality may be present in the maltivarious acts at varying levels of ability.

With the rapid developments of new knowledge and skills with the advancement of science and technology, creativity and its study has assumed greater importance. Creativity is being encouraged to avoid stagnation and to allow individuals to achieve their own fulfillment. The concept of creativity has now been a popular one in educational thought. Creativity has been associated with literature, drama, painting, sculpture, designing, music and dance. It has been related with problem-solving in general and skills improvement in particular.

To become physically and mentally fit and retain it an individual is required to do regular exercises. Doing exercise activates the muscles, joints and ligaments, increases efficiency of the glands, lungs and circulatory system. Increased supply of blood to the grey cells of the brain may help in critical and constructive thinking. To solve various problems require creativity and creativity is based on critical thinking. It is believed that physically and mentally fit person can think critically without much hindrance compared to persons who is not fit. Thus the present study was taken up to find out whether there exists a significant relationship between physical fitness and creativity or not.

Objectives

The researcher to investigate the manifestations of creativity in relation to physical fitness of the individual school going children. The objectives of undertaking such a study were –

(1) To observe the rate of improvement of creativity among boy's subjects of different age group

(2) To observe the rate of improvement of physical fitness among subjects of different age group

(3) To observe the relationship between creativity and physical fitness of boys

Review of Literature

Rastogi et. al. (1982) found no significant sex difference and emotional security-insecurity interaction effect with sex on the basis of their study on the effect of creativity on mental health.

Males were found to be more flexible than females on a Torrance test administration by Akinboye (1982). His findings with rigid format group and answer at will group further supported the theory that time constraints reduce creativity due to the time pressure causing blockage of perceptual reorganization.

Malina RM. (2001) thinking in public health posits that childhood and adolescent physical activity and physical fitness may influence health status during childhood and adolescence, as well as throughout adulthood. This paper addresses the evidence dealing with potential associations of physical activity and physical fitness in childhood and adolescence to health status during childhood, adolescence, and adulthood. There are generally low to moderate relationships between childhood and adolescent physical activity and health (operationalized largely in terms of health-related physical fitness) and adult physical activity and health. A large part of the variability in health-related fitness is not accounted for by physical activity as assessed in the available studies. Nevertheless, the trends emphasize the importance of a lifestyle of regular physical activity during childhood and adolescence, which continues into and throughout adulthood, for the health and well-being of the individuals and populations.

Matton L, Thomis M, Wijndaele K, Duvigneaud N, Beunen G, Claessens AL, Vanreusel B, Philippaerts R, Lefevre J.(2008) evaluate stability of physical fitness and physical activity from adolescence into middle adulthood in Flemish females. Within the scope of the Leuven Longitudinal Study on Lifestyle,

Fitness and Health, 138 females (mean age=16.6+/– 1. 1 yr) from the Leuven Growth Study of Flemish Girls were seen in adulthood (mean age=40.5+/– 1.1 yr). Several body dimensions and motor fitness tests were taken. Physical activity was assessed by means of a sports participation inventory. Inter-age correlations were calculated between adolescent and adult values. In Flemish females, anthropometric and fitness characteristics demonstrate higher levels of stability from adolescence to middle adulthood than physical activity. Weight status during adolescence is indicative of adult weight status and a pattern of less activity rather than activity tends to continue from youth to adulthood.

Methodology

The researcher included the process of collecting data from the sample through different standard test and used different methods to fulfill the objective of the present study. The following test criteria were measured such as – age as a personal data, B.K.Passi test of creativity to measure fluency, flexibility, originality and creativity of the subjects and AAHPER Youth Physical Fitness test to measure the physical fitness of the subjects.

150 students were selected randomly as the sample of the present research work. They were selected from different classes such as class-V, VII, IX & XI and the numbers of samples from each class were 40, 45, 34 and 31 respectively. All the boys were taken from Madhyamgram High School at Madhyamgram from the district of North 24 Parganas of the state of West Bengal in India. They belonged to almost the same standard.

Personal Data:

Name & Age: The name & age of the subjects were recorded from the school Register Book.

Test of Physical Fitness: The test of physical fitness consisted of six test items – (i) Pull-ups, (ii) Sit-ups, (iii) Shuttle Run, (iv) Standing Broad Jump, (v) 50yds. Dash, and (vi) 600yds. Run and Walk. All these test items were field tests and administered in the two days.

Total score of Physical Fitness Test: Summation of the scores obtained in all the six test items was the total score of Physical Fitness and the scoring was done with the help of AAHPER YOUTH FITNESS scoring key.

Test of Creativity: The B.K. Passi test battery consists of five test items. Among the five items, four were verbal & completely written and one item was figural and manipulative type with provision of writing the results of manipulation.

(i) The Seeing Problem Test: This test proposes to measure the ability to comprehend problems concerning the working of simple and handy articles of common use, and thereby it measures fluency. The seeing problem test includes four items, namely Shoes, Pen, Chair and Post-card. The subjects were to think and write down in the answer sheet the defects and problems of use.

Scoring: In case of seeing a problem test, the accepted response was given a credit of one score. The total number of such accepted responses on the whole test consisting of all the four items represented the score for the seeing problems test. The scoring was done with the help of the scoring key.

(ii) The Unusual uses Tests: It was a verbal test, and administered individually and in group. The test measures fluency, flexibility, originality and creativity. This test includes two items, namely, a piece of cloth and bottle. The subjects were asked to write down all possible unusual and interesting uses of each of the objects in the respective cells within the allotted time.

Scoring: This test measured the dimensions of fluency, flexibility and originality. The scoring was done with the help of the scoring key. The total of fluency, flexibility and originality score represented the score of creativity.

(iii) The Consequences Test: It was verbal and an individual test but could be administered in group as well. This test measures fluency and there are four items. Subjects were to write down in the answer book specified for the particular statement.

Scoring: This test was designed to measure fluency. Fluency was represented by the sum total of accepted responses against this test. The scoring was done with the help of the scoring key.

(iv) The Test of Inquisitiveness: It was a verbal and individual test. It could be administered in group as well. When the researcher displays a table clock with working condition in front of the subjects, questions arise in their minds. These questions were to be written down in the particular cell of the answer book. All the questions have to be meaningful.

Scoring: In this test the relevant questions asked about the table clock were counted in order to get the score of inquisitiveness. Scoring was done with the help of scoring key.

(v) The Block Test of Creativity: It was a nonverbal and an individually administered test. The researcher had prepared ten sets of block, and thus could engage ten subjects at a time. Each subject was given 10 minutes individually, and a full set of block. With the help of these 31 blocks (19 cubes and 12 semi cubes) they had to make as many different things as possible on the floor or bench. The subjects had the liberty to use all or part of the blocks at a time. The name of the things made was written down in the answer book.

Scoring: The dimensions of fluency, flexibility, and originality were measured with the help of the block test of creativity. The scoring was done with the help of the scoring key.

Total Scores of the Creativity Test: After recording scores in the five tests, the total fluency, flexibility and originality score was found from the summation of all fluency, flexibility and originality scores of five tests. And the total creativity score was found from the summation of the creativity scores of all five tests.

Results & Discussion

Physical Fitness:

Table – 1

The mean and S.D. of scores in Physical fitness of the four groups, class – V, VII, IX and XI were presented in this table.

Group	Class – V	Class – VII	Class – IX	Class – XI
Mean	172.64	192.82	123.51	124.58
S.D.	71.81	63.21	56.16	43.90

From Table – 1, it appears that the Class - VII boys had the highest physical fitness value, and the score of Class - V boys was also higher than Class – IX as well as Class – XI boys. The mean physical fitness score of both the Class – IX & XI groups were more or less the same.

Creativity and its components:

Table – 2

The mean and S.D. of scores in fluency of the four groups, class – V, VII, IX and XI were presented in this table.

Group	Class – V	Class – VII	Class – IX	Class – XI
Mean	26.08	32.71	33.38	41.03
S.D.	12.37	8.89	10.27	16.93

From Table – 2, it was evident that Class - XI boys had more fluency than the other three groups, and Class - V boys were lower in fluency than the other three classes. But there was no such difference in fluency between Class - VII & IX students.

Table – 3

The mean and S.D. of scores in flexibility of the four groups, class – V, VII, IX and XI were presented in this table.

Group	Class – V	Class – VII	Class – IX	Class – XI
Mean	7.00	9.89	10.06	9.84
S.D.	1.85	3.23	3.47	2.85

Table – 3 indicated that the mean scores of flexibility of VII, IX & XI classes were more or less the same but class – V students possessed lowest mean value.

Table – 4

The mean and S.D. of scores in originality of the four groups, class – V, VII, IX and XI were presented in this table.

Group	Class – V	Class – VII	Class – IX	Class – XI
Mean	14.2	15.33	19.68	18.00
S.D.	8.32	7.14	11.81	8.66

Comparing the means of the groups at a glance it was found that the class – IX students were superior to the other three groups, and Class – XI was superior to the Class – V and VII. But the class – V and VII were rather close in means.

Table – 5

The mean and S.D. of scores in creativity as a whole of the four groups, class – V, VII, IX and XI were presented in this table.

Group	Class – V	Class – VII	Class – IX	Class – XI
Mean	47.28	57.33	63.12	68.77
S.D.	20.66	14.56	21.79	21.91

Table – 5 showed that the class – XI boys were superior in creativity to the other three groups. The correlations between two variables were computed by the product moment method of co-efficient of correlation. It was also important to observe the relationship between the variables.

Table – 6

The relationship between physical fitness and components of creativity for the four groups, Class – V, VII, IX and XI were presented in this table.

	Class – V			Class – VII			Class – IX			Class – XI		
	Flu.	Flex.	Orig.	Flu.	Flex.	Orig.	Flu.	Flex.	Orig.	Flu.	Flex.	Orig.
Phy. Fitness	-0.044	-0.227	-0.222	0.107	-0.099	-0.156	0.075	0.090	0.154	-0.022	0.213	0.195

When df. of Class – V, VII, IX and XI were 38, 43, 32, and 29 respectively, ‘r’ values required for significance at 0.05 level were 0.312, 0.295, 0.340 and 0.355 respectively and at 0.01 level were 0.403, 0.381, 0.437 and 0.456 respectively.

Table – 7

The relationship between physical fitness and creativity for the four groups Class – V, VII, IX and XI were presented in this table.

Groups	Class - V	Class – VII	Class – IX	Class – XI
Creativity Vs. Physical Fitness	– 0.136	– 0.006	0.133	0.094

When df. of Class – V, VII, IX and XI were 38, 43, 32, and 29 respectively, 'r' values required for significance at 0.05 level were 0.312, 0.295, 0.340 and 0.355 respectively and at 0.01 level were 0.403, 0.381, 0.437 and 0.456 respectively.

From the statistical calculations of data it was found that physical fitness is inversely related with overall creativity score of Class – V and Class – VII students but the relationship was found insignificant, whereas in case of Class – IX and Class – XI students there were positive insignificant relationships.

In the early period of childhood, a child possesses abundant energy and is always eager to engage in various activities. Children are very fond of play activities to have fun with, not always keeping an eye on the results. They are at this stage not aware of the problems and are thus reluctant to think critically about the problem and solve it. This might be the cause of the inverse relationship between physical fitness and creativity of Class – V and Class – VII students.

With the advent of adolescence a wide range of changes takes place in a child both physically and mentally. Growth and development of a child transforms a child into a separate entity. He/ She thinks himself/herself as almost equal to all the majors, he/she becomes increasingly aware of the problems and grows a tendency to think about that and solve it. Encouragement from teachers and elders help to increasingly engage himself/herself in critical thinking and problem solving. Due to that reason, the students of Class – IX and Class – XI showed slightly better results in the relationship between creativity and physical fitness than that of the students of Class – V and Class – VII.

Conclusions

On the basis of results and discussion, the following conclusions were drawn.

(1) The students of class – XI were better in fluency than other three groups i.e. class – V, VII & IX groups. The students of class – VII and class – IX also were better than class – V students.

(2) In flexibility, class – VII, IX & XI students were better than the students of class – V students.

(3) In originality, the students of class – IX were better than class – V & VII students.

(4) In creativity class – XI students were also better than other three groups of students. The students of class – IX also were better than class – V & VII students.

(5) In physical fitness, the students of class – VII were better than class – V, IX & XI students, and class – V were also better than class – IX & XI group of students.

(6) The correlation between physical fitness and components of creativity & creativity, it was found that class - V, VII, IX & XI groups were not significant, but class – V and class –VII had a negative relationship.

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